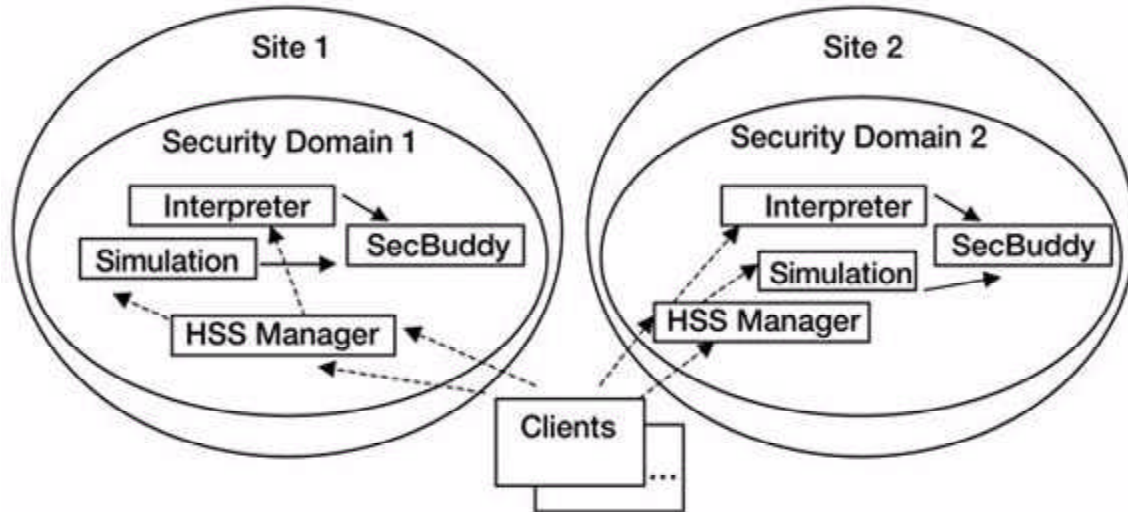# CORBASec Used to Secure Distributed Aerospace Propulsion Simulations

CORBASec multiple security domain, multiple ORB interceptor services, and application-invoked architecture.
Two ovals labeled Site 1, Security Domain 1, and Site 2, Security Domain 2,each contain boxes labeled Interpreter, SecBuddy, Simulation, and HSS Manager. Arrows depict the flow of information between these boxes. External to the ovals are boxes labeled clients, and there are also data flows between the clients and the domains.

The NASA Glenn Research Center and its industry partners are developing a Common Object Request Broker (CORBA) Security (CORBASec) test bed to secure their distributed aerospace propulsion simulations. Glenn has been working with its aerospace propulsion industry partners to deploy the Numerical Propulsion System Simulation (NPSS) object-based technology. NPSS is a program focused on reducing the cost and time in developing aerospace propulsion engines. It was developed by Glenn and is being managed by the NASA Ames Research Center as the lead center reporting directly to NASA Headquarters' Aerospace Technology Enterprise. Glenn is an active domain member of the Object Management Group: an open membership, not-for-profit consortium that produces and manages computer industry specifications (i.e., CORBA) for interoperable enterprise applications. When NPSS is deployed, it will assemble a distributed aerospace propulsion simulation scenario from proprietary analytical CORBA servers and execute them with security afforded by the CORBASec implementation.

The NPSS CORBASec test bed was initially developed with the TPBroker Security Service product (Hitachi Computer Products (America), Inc., Waltham, MA) using the Object Request Broker (ORB), which is based on the TPBroker Basic Object Adaptor, and using NPSS software across different firewall products. The test bed has been

migrated to the Portable Object Adaptor architecture using the Hitachi Security Service product based on the VisiBroker 4.x ORB (Borland, Scotts Valley, CA) and on the Orbix 2000 ORB (Dublin, Ireland, with U.S. headquarters in Waltham, MA). Glenn, GE Aircraft Engines, and Pratt & Whitney Aircraft are the initial industry partners contributing to the NPSS CORBASec test bed. The test bed uses Security SecurID (RSA Security Inc., Bedford, MA) two-factor token-based authentication together with Hitachi Security Service digital-certificate-based authentication to validate the various NPSS users.

The test bed is expected to demonstrate NPSS CORBASec-specific policy functionality, confirm adequate performance, and validate the required Internet configuration in a distributed collaborative aerospace propulsion environment.

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